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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/792,084	03/03/2004	Shih-Ming Chang	TSM02-0658	4892
43859	7590	05/24/2007		
SLATER & MATSIL, L.L.P. 17950 PRESTON ROAD, SUITE 1000 DALLAS, TX 75252			EXAMINER ROSASCO, STEPHEN D	
			ART UNIT	PAPER NUMBER
			1756	
			MAIL DATE	DELIVERY MODE
			05/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/792,084	CHANG ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Stephen Rosasco	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 1-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### Detailed Action

In response to the Amendment of 4/3/07, wherein claim 30 was canceled, the examiner withdraws the previous office action rejections and includes a new rejection here over newly cited art.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 15-17 and 23-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Jen et al. (6,337,173).

Jen et al. addresses claims 15-17 and 23-29 and teach a method for fabricating a capacitor electrode on a semiconductor substrate on which a transistor having a diffusion region is formed, comprising the steps of: forming a first insulating layer over the semiconductor substrate;

patterning the first insulating layer to expose a portion of the diffusion region as a window;

forming a first conducting layer over the semiconductor substrate and filling in the window;

forming a second insulating layer over the first conducting layer;

forming a photoresist layer over the second insulating layer;

patterning the photoresist layer through an interfering exposure step using a holography technology;

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etching anisotropically the second insulating layer using the patterned photoresist layer as a mask, thereby forming a plurality of openings in which the first conducting layer is exposed;

etching anisotropically the first conducting layer using the second insulating layer as a mask;

removing the photoresist layer and the second insulating layer, thereby leaving the first conducting layer as a lower capacitor electrode;

forming a dielectric layer over the lower capacitor electrode; and forming a second conducting layer over the dielectric layer as an upper capacitor electrode.

further including a photolithography step before forming the second insulating layer for defining the lower capacitor electrode.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jen et al. (6,337,173) in view of Tsuji et al. (6,392,742).

The claimed invention is directed to a method of patterning a target, comprising providing a target, the target having a top surface, the target top surface having a material layer disposed thereon, a first photoresist layer disposed over the material layer, a transparent spacer material disposed over the first photoresist layer, and a second

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photoresist layer disposed over the spacer material; and patterning the second photoresist layer of the target with a holographic fringe representation of an image.

And further comprising using the second photoresist layer to pattern the first photoresist layer with the image.

And further comprising providing a lithography reticle, the reticle comprising a pattern of transparent regions and opaque regions, the pattern comprising the holographic fringe representation of an image to be patterned on the material layer of the target; and using the lithography reticle to pattern the second photoresist layer of the target with the holographic fringe representation of the image.

The applicant discusses the limitations of the prior art in that reticle defect inspection and repair are difficult, time-consuming tasks if possible. In the claimed invention a layout pattern or image to be transferred to a target is converted into a holographic representation of the image, and a hologram reticle is manufactured that includes the holographic representation. The hologram reticle is then used to pattern a wafer.

Advantageously, imperfections or defects on the hologram reticle are not transferred to the wafer. The original image is partitioned and encoded across the entire hologram reticle, which breaks the one-to-one corresponding relationship between defects on the reticle to the wafer. A defect on the hologram reticle does not directly induce a flaw on a wafer, but rather, the defect influence is spread into the entire hologram reticle image, and merely affects the intensity or contrast of the hologram reticle slightly.

The lithography reticle includes a material having a pattern, the pattern including opaque regions and transparent regions, the pattern comprising a holographic

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representation of an image, wherein the holographic representation of the image is formed using a Computer-Generated Holography encoding technique.

Jen et al. is included here as discussed above.

The teachings of Jen et al. differ from those of the applicant in that the applicant teaches the use of a reticle comprising transparent and opaque regions comprising a holographic fringe representation of an image to be used in exposure process.

Tsuji et al. teach (see claims 7-21) a first optical system which includes a computer generated hologram for supplying a light pattern having a uniform light intensity distribution and having a shape related to an illumination condition, characterized in that a reticle having a pattern is illuminated with light from an illumination system, and that the pattern of the reticle as illuminated is projected onto a substrate to be exposed.

It would have been obvious to one having ordinary skill in the art to take the teachings of Jen et al. and combine them with the teachings of Tsuji et al. in order to make the claimed invention because it is well known to combine exposure with a reticle comprising a holographic pattern.

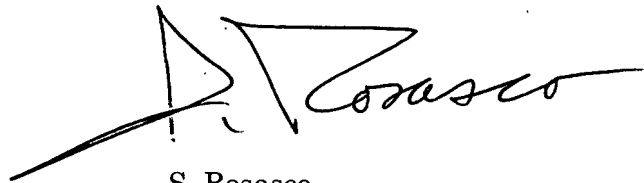
Applicant's arguments with respect to claims 15-29 have been considered but are moot in view of the new ground(s) of rejection.

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*Conclusion*

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Stephen Rosasco whose telephone number is (571) 272-1389. The Examiner can normally be reached Monday-Friday, from 8:00 AM to 4:30 PM. The Examiner's supervisor, Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'S. Rosasco', with a stylized, sweeping flourish extending from the end of the name.

S. Rosasco  
Primary Examiner  
Art Unit 1756

S. Rosasco  
05/21/07